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PERSPECTIVES OF THE ACCUMULATIVE SYSTEM "HOW TO BECOME A MINISTRY OF TRANSPORT AND INFRASTRUCTURE?"

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ПЕРСПЕКТИВИ НАКОПИЧУВАЛЬНОЇ СИСТЕМИ «ЯК СТАТИ МІНІСТРОМ ТРАНСПОРТУ ТА ІНФРАСТРУКТУРИ?»

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ПЕРСПЕКТИВЫ НАКОПИТЕЛЬНОЙ СИСТЕМЕ «КАК СТАТЬ МИНИСТРОМ ТРАНСПОРТА И ИНФРАСТРУКТУРЫ?»

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Introduction

Among the wide range of problems caused by the inevitable process of globalization of information systems, business and politics, the connection of pedagogy, through logistics, to a single space of human development, the information society acquires special significance due to the growth of the role of information and communication infrastructure in the system of social production [1].

The charter of the global information society states that all people, without exception, should have the opportunity to take advantage of the global information society, and the resilience of this society is based on democratic values, such as the free exchange of information and knowledge, mutual tolerance and respect for the peculiarities of other people. [2].

The time has come when media competence goes beyond canonical theories and methods, and formed under the influence of both national and transnational trends [3].

At the same time, there is: generating an exchange of best practices in the field of innovation cluster development; promotion of global knowledge dissemination and rapid technology withdrawal into the market; exchange of best practices and ideas in the field of education management; mutual recognition and transparency of professional qualifications; cooperation through innovation alliances to form the critical mass of scientific and technical knowledge and labor resources needed to support innovative societies [4].

Contemporary transformations in our country, overlapping with democratic practices in the prevention of corruption in the EU [5] at all levels and branches of government in general, and in particular

sectors of the economy, in particular, lead to the creation of the accumulative system "How to become the Minister of Transport and Infrastructure?" to solve the problem of staffing the field of transport and road construction in a global competitive environment; raising the general level of education and knowledge gained by future specialists in the industry, and establishing interaction between educational institutions of the transport sector, employers, state authorities and local self-government.

With the use of modern information technologies, it is proposed to create an information and logistics center (ILC) of the National Transport University (NTU) and implement the accumulation system "How to become the Minister of Transport and Infrastructure?" for using the students' basic rating points for further professional activities in the field of transport and road construction [6].

After all, the problem of the further employment of graduates of educational institutions of transport profile is known to everyone: the refusal to work because of "lack of practical experience." And why was the rating system introduced during the studying? During the studying in the institution of education of the transport profile, students, depending on the professional orientation, will receive (this is entered into a diploma) from 8 thousand up to 12 thousand points. Moreover, these points are accrued not only for studying, but also for the passage of various industrial and pre-diploma practices, participation in scientific conferences, involvement in research, search, patenting, publishing, etc. And this, for some reason, is not taken into account in further employment and confirmation of the experience of a future specialist.

The proposed accumulation system at the ILC should become a significant leverage for students to respect their experience during their studying at an institution of education, and should encourage the full involvement of students in various fields of activity (not only studying), from which the future of the graduate depends on in a future employment in a professional orientation. In parallel, it is foreseen to create accumulative system for faculty-professionals (replacing the existing distorted "Rating of Teachers" base), which reflects their real professional abilities in transport and road construction projects and programs, and has become a real example for students.

The task of the accumulation system at ILC is:

– creating of databases (DB) of entrants, students, post-graduate students, professors, specialists of transport-road operators and other interested organizations;

– developing of a mechanism for coordination and exchange of information between interested parties.

The main functions of the ILC include the following:

– attraction of specialists of different levels of qualification for implementation and realization of tasks of different level of complexity of projects and programs in the field of transport and road construction;

– formation of personnel and teams of projects and programs in the field of transport and road construction for subjects of different levels of management in the conditions of UPGRADE (for operational, tactical and strategic levels of management);

– creation of a regional data bank (reserve) for teachers, students/graduates, specialists and employers in the field of transport and road construction;

– studying the needs of specialists in the field of transport and road construction in the regions;

– selection of candidates for participation in the competition for vacant positions of managers in transport and road construction;

– conduction of sociological surveys on the issues of employment, further development of transport personnel and road construction, etc.;

– comparative analysis of the activity of education institutions of the transport profile;

– assessment of the efficiency of the educational system, development and implementation of innovation projects, etc.

Purpose and Methods

The purpose of this study is to create accumulative system as workable mechanism for implementing reforms in the field of education, stimulating students to acquire knowledge and prevent bribery in educational institutions and state authorities, increase the professional level of specialists and provide further specialists for operational, tactical and strategic levels of management for projects and programs in the field of transport and road construction.

The system approach, the theory of precedents; the theory of decision making and methods of multi-criteria assessment, as well as elements of the theory of project and program management, and team management are used in the research.

Results and Discussion

Consider the provided technical details for creating an ILC:

– equipping of modern computers with a package of complex programs, which will become the nucleus of the Regional Educational Logistics Center (RELC) in the future on the basis of NTU [7];

– development of the rating database of students and professors-professionals, which shows the real status of their rating (in the perspective - the databases of educational institutions of transport profile and transport specialists of the country);

– management is carried out through the local information network with the general site and access to the Internet (in the perspective - the ILC NTU connection with other ILC of the country with the further access to the Global Employment Network);

– functioning of the ILC NTU on a commercial basis (outsourcing) through the making agreements with organizations and participants in the pedagogical process to provide a variety of services, among which:

– organization of educational logistics chains and tracking of their implementation;

– optimization of placement of educational institutions in the region;

– selection of partners for educational institutions and assistance in the making of agreements;

– advice on teaching technology;

– creation of a regional data bank (reserve) for professors;

– holding of regional meetings and conferences;

– studying and disseminating of the new methods of teaching and management;

– supplying educational institutions with modern equipment, methodological and educational literature for the educational process;

– creation and management of a regional electronic network of libraries of educational institutions and local libraries;

– assistance in training of scientific staff for regional educational institutions, etc.

Consider the recommendations for the practical creation of the accumulation system "How to become the Minister of Transport and Infrastructure?". Completing the tasks of different levels of complexity of projects and programs in the field of transport and road construction concerns transport services, vehicles, road infrastructure objects, information support, transport personnel, etc. It should be noted that the process of forming staff and teams of projects and programs in the field of transport and road construction under conditions UPGRADE:

– is laid at the design stage of route systems and transport networks;

– is created in the process of organization of transportation;

– and it is realized at transport service of the population.

In accordance with the requirements of the current legislation, the responsibility for the provision of safe transport services lies on transport personnel, whose level of competence is an important factor in preserving and strengthening the social stability of the society and ensuring the life of the population under the conditions of effective management of passenger traffic. This approach allows us to adhere strictly to the principles of protecting society from unprofessionalism in transport, which is dangerous to the lives and health of transport service users.

Specialists in project management believe that the quality of project development and the steady control of their implementation prevent the improper satisfaction of consumers. At the same time, it is generally recognized that it is impossible to obtain high management efficiency only through the development and implementation of projects, even if they provide a high level of scientific support.

The most effective direction of providing stable high quality services in the context of modernization of transport, modern concepts of project management recommend creation the mechanism of rational use of human resources and personnel potential, as well as the mastery of transport personnel by modern management methods at the stage of team formation [8]. After all, according to modern studies, investments in training the personnel potential of production are approaching to the level of investment in technical support.

Based on the use of elements of the theory of project and program management, an approach is proposed where the components of the tasks of forming staff and the teams of projects and programs in the field of transport and road construction are disclosed. It is suggested to qualify three levels that characterize the expediency of using the algorithm and the software product, for example, the formation of teams of urban passenger transport projects, depending on the hierarchy of tasks to be solved (Fig.1).

Consider the practical recommendations for creating an accumulative system "How to become a Minister of Transport and Infrastructure?" and to further provide the transport industry with specialists of the appropriate level of qualification for the operational, tactical and strategic levels of project management and programs in the field of transport and road construction.

Recommendations are defined in a uniform procedure for the formation of personnel and teams of projects and programs in the field of transport and road construction, which is carried out to meet the needs of the population in transport services and improve the efficiency of transport personnel.

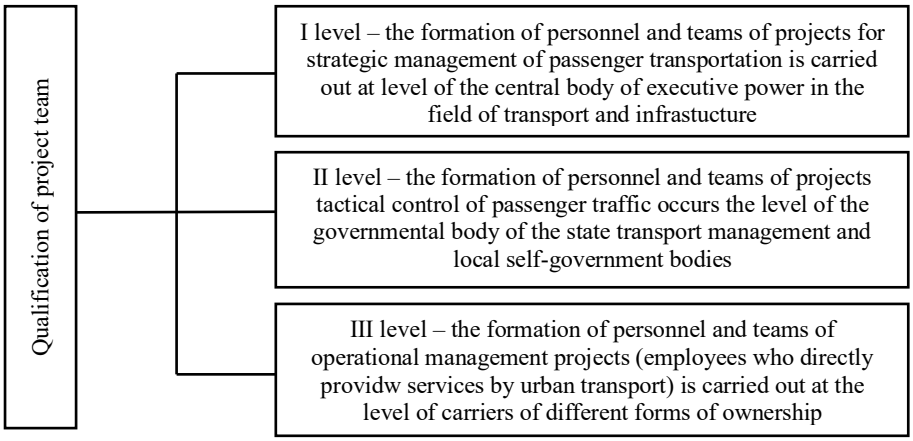

Figure 1 – Qualification of teams of urban passenger transportation projects

Materials for the formation of personnel and teams of projects are used for rational selection and recruitment of staff to the management structure of the body, which is responsible for transport and infrastructure, which enables to optimize the solution of the tasks of management of passenger transportation technology, namely: preparation of materials for the competition for transportation; definition of organizers of transportation; survey of passenger traffic on routes; calculation of the optimal number of vehicles and their distribution on the transport network; normalization of speed of vehicles and rational mode of their movement on routes; formation of timetables on routes, along with the work of drivers and the reserve of vehicles on routes; dispatching and controlling passenger transportation.

The effectiveness of the formation of personnel of projects teams is determined by the systematic, unanimity, uniformity of the data bank of personnel, a list of characteristics of solved problems, a database of precedents [9], as well as the possibility of rational formation of a portrait of the "ideal" candidate for the corresponding position, taking into account the convenience of the user interface.

The software for the computing equipment contains a package of programs for conducting selection calculations, selection of personnel of projects teams with the organization of implementation of logical control, intuitive interface subsystem of collection and processing of input information, as well as the issuance of final results.

The data bank of the personnel of the project teams, as well as the list of candidates for the corresponding positions, is filled by carriers and officials of the governmental body of the state administration on transport and local self-government bodies. Initial data on the results of the selection of project teams is provided to the customer in printed form or on electronic media together with the designated software and provides for author's supervision.

According to the recommendations made for carriers and officials of the governmental body of the state administration in transport and local self-government bodies: the formation of a data bank of project teams, a list of characteristics of problem solving and a database of precedents; processing of information on algorithms for the formation of personnel of projects teams; analysis of the results of the formation of personnel of project team.

Consider the stage "Formation of data bank of project teams, list of characteristics of problem solving and database of precedents". When developing a model of a problem situation, the project manager has to operate with bulky operating arrays, gradually filling it with appropriate elements and parameters. In order to ensure effective interaction of all participants in the project design and decision-making, as well as the adequacy and correctness of the given elements and parameters of the model, the software package provides a "Data Entry" block.

According to the phases of modeling of problem situations, the "Data Entry" block is divided into the following components: a component implementing the introduction of model elements; component that provides input of model parameters; component that implements the organizational structure of the project.

Task of the problem situation is supported by the class TfrmPrbOBL, the new problem situation is given by the project manager in the window "Registration of the problem situation", entered in the corresponding database table (PredmOBL.dbf) and reflected in the window "Task Manager".

The description of the problem situation and the determination of the set of goals whose achievement

leads to its solution is implemented by the TProblemTarget class - executed by the project manager in the Formation of Problems and Goals window, is entered into the tables Problem.dbf, Targets.dbf and also reflected in the Task Manager window.

Generation of alternatives or methods of solutions is provided by the TALTMTD class (in this case, the project manager identifies the generator code that proposed this idea in the GenID field) in the Alternate Generation or Generation of Decision Methods windows.

Generation of quality indicators and uncertainty situations is implemented according to the TStdQuality and TStdNeopr classes – executed by the project manager based on dictionaries of standard quality indicators or uncertainty situations.

Selection of the model scenario is supported by the TRegForm class (conducted by the project manager in the "Parameters of the model" window): parameters of the stage of generation of ideas (whether to generate alternatives, methods of decisions, quality indicators, situations of uncertainty); parameters of the stage of expertise (whether to evaluate alternatives, methods of decision, method of evaluation: a score or a rank scale); all the formed elements and parameters of the model of the problem situation are stored in the SetUp.dbf table; this table also has logical fields that reflect the current decision-making model: the model of one-criteria choice under uncertainty (MQuality class), the model of multi-criteria compromise under uncertainty (uses the parameters, methods and procedures of both classes - Mneopr and MQuality).

Score estimation of alternatives (methods) of solutions is provided by the TComBalMarks class, performed by each expert individually; for this purpose, in the Expertise Wizard window, an expert must find own last name on the list of experts admitted for this expert examination, enter own identification code and select as object of assessment “Alternatives” or “Decision Methods”; then in the "Ball Assessment of Alternatives (Decision Methods) in the Situation of Uncertainty" windows, experts should assign each alternative (or method of decision) for each indicator of quality or situation of uncertainty the corresponding score.

Registration of project managers is supported by the TForm1 and TfrmInfoManagers classes, these classes provide registration of personal data of project managers, their interaction with the top manager of projects (the level of access of the system administrator, which allows editing all projects without exception) and among themselves; while the project manager has the right to make corrections only in the projects he has developed; all information about project managers is stored in the Managers.DB table.

Introduction of the organizational structure of the project:

– formation of models of problem situations, which includes a plurality of tables with elements and parameters of these models;

– formation of project participants, which consists of tables of information about specialists and project managers who have ever participated in the decision-making projects of the current company;

– providing ready-made solutions to the user is a set of tables with problem situations models and, accordingly, different reports of decisions that have ever been made.

Consider the stage "Processing information on algorithms for the formation of project teams".

The programmatic implementation algorithm for the design of project teams allows to evaluate the costs and timing of a new project on the basis of comparison of information on new and pre-completed projects; to organize information on the professional and personal characteristics of team members of pre-completed projects; obtain objective information on the project documentation of pre-completed stages. Stages of information processing for the formation of project teams are presented in Figure 2.

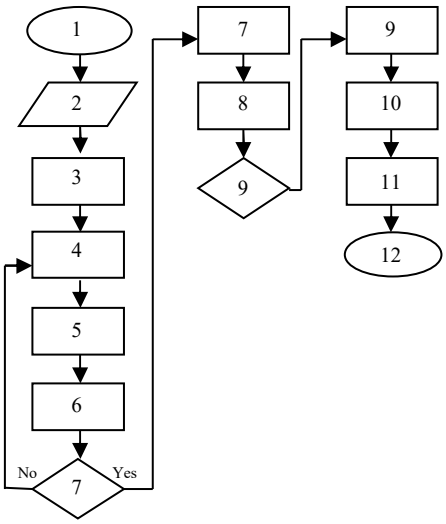

Figure 2 – Algorithm for processing information on the formation of project teams

The block diagram of processing information on the formation of project teams contains: 1 - the beginning; 2 - data input relative to elements and parameters of decision models; 3 - determination of the task of the problem area; 4 - description of the problem situation and determination of the set of goals; 5 - generation of alternatives or methods of decision making; 6 - generation of indicators of quality and situations of uncertainty; 7 - selection of scenario of model calculation; 8-score assessment of alternatives (methods); 9 - registration of project managers; 10 - forming models of problem situations; 11 - the formation of project teams; 12 - providing the user with ready-made solutions.

Consider the stage "Analysis of the results of the formation of project teams". In the process of designing and making decisions, the project manager has to operate with large information flows and accordingly store in one form or another, bulk information arrays. It is clear that the modern level of computer technology and software development, the use of paper technology for data entry and storage is a labor-intensive and inefficient process that requires considerable time and resources. In this regard, it is proposed to develop a software complex for the formation of project teams, which includes a database of decision models and software tools for its introduction, as well as a system for protecting data from unauthorized access.

The program complex for the formation of project teams is designed to automate the search, storage, processing, analysis and display of information for solving human resource management tasks and the formation of project teams, in particular: maintaining a complete set of personnel information, including the description and nature of completed projects in the field of transport and road construction; implementation of full, partial or personal information research of human information on transport personnel; conclusion of information about transport personnel corresponding to a given set of characteristics with information arrays available in the database; comparison of characteristics of the transport personnel with a given generalized standard on the basis of multi-criteria optimization procedures; the system has a password hierarchy of access to various content materials.

The program complex for the formation of project teams allows you to work in an interactive mode. The monitor displays the modes that are available to this user and if the access password is allowed for him, the system goes into an interactive mode in which the user sets his search criteria and analysis tasks. Requests and work with information are made in a convenient form for user, with tips and using the language of SQL.

The main modules that perform the work: the module describing the technical task of the new project and the model of search of adequate project works for the new design project; the module for providing predictable project solutions provides interface features to describe the main characteristics of a new project.

The search mechanism involves the use of a database of projects that will carry out an automated search. A similar basis is existing carriers' program complex of planning and project management for introducing new equipment into production.

The procedure for finding potential candidates for positions in the project contains the following stages: description of the project work in the form of text; detection from the received description of the concepts from the available categories; clustering of found concepts; search for a project that is adequate in structure to the new, within a given range of adequacy; narrowing the search by including search features that further characterize the project; select from the list of found adequate projects a list of potential performers (tables 1-3).

Table 1 – Assessment of the adequacy of project work

Precedents	Characteristics of the project				Level of similarities
	Lm, км.	Nm, unit	Ntz, unit	Types of transport	
1	112	9	95	2	0,138
2	52	6	42	1	0,147
3	303	23	124	3	0,023
4	96	11	107	2	0,133
5	120,5	15	93	1	0,367

Where: Lm (length of routes, km.); Nm (number of routes, units); Ntz (number of vehicles, units).

Table 2 – The weight factor of the criteria for the adequacy of project work

Characteristics of the project	Weight factor	The value of the characteristic
Lм, км.	0,1	124,5
Nm, unit	0,1	9
Ntz, unit	0,4	33
Types of transport	0,4	2

Table 3 – The value of individual characteristics of the "ideal" candidate

№	Characteristics to be evaluated	Weight factor	Individual values
1	sex	0,05	M
2	age	0,05	35
3	education	0,1	transport profile (auto)
4	work experience in the industry	0,16	not less than 5 years
5	knowledge of regulatory documents on the organization of passenger transportation	0,16	+
6	PC user	0,1	standard office programs, Microsoft Visio, AutoCAD, ArchiCAD
7	responsibility	0,07	100
8	kindness	0,07	100
9	ability to work in a team for a result	0,07	100
10	active life position	0,07	100
11	excellent communication skills	0,1	100

In the process of practical testing of the models and methods proposed in the study, the task of finding job executors for conducting a survey of passenger traffic on large routes was solved. In the process of experimental introduction of the proposed technology for the formation of project teams implemented by the computer software complex, it was solved more than 40 different in terms of volume and complexity of problem situations. Based on the analysis of the results of these studies, appropriate charts were constructed.

The results of studies on the feasibility of using the program complex of the formation of project teams are summarized in Table 4, which identifies the effectiveness of its usage in relation to a specific problem situation of the formation of projects teams of urban passenger transport.

Table 4 – Characteristics of the levels of formation of projects teams that determine the feasibility of using of the software complex

№	Name of the indicator	Measurement evaluation	I level	II level	III level
1	Number of model elements	units	up to 20	up to 15	up to 7
2	Spending time	days	up to 30	up to 10	up to 5
3	Financial expenses	grn.	up to 4000	up to 1800	up to 700
4	Labor costs	man/hours	up to 1000	up to 700	up to 50
5	Error of decision making regarding project team selection	%	up to 2	up to 5	up to 7

Conclusions and References

Consequently, the proposed information technology allows to create accumulative system as workable mechanism of reforming education to encourage the acquisition of knowledge by students and prevention and prophylactic of bribery in educational institutions and government agencies, improve the professional level of specialists and further providing with experts for operational, tactical and strategic levels of projects and programs management in transport and road construction. The method of forming the project team consists of two main stages, namely:

– I stage – on the basis of the precedent theory, conduct the search of projects which are similar to the new ones, from which the lists of project implementers are formed. These lists are the basis for forming a new project team. In addition, information on the duration of projects and the number of personnel for their implementation comes to the transport management of local governments and carriers for preliminary analysis of the timing and cost of a new project to improve urban passenger transportation.

– II stage – the pre-formed list of candidates goes to the assessment block, where the procedure of individual assessment of the project team is carried out using the multicriterial assessment apparatus. Finally, the candidates selected are ranked in accordance with the portrait of the ideal employee, and the person who makes the decision, carries out the final selection of personnel and assigns him to the position to the project of construction of passenger route systems of cities.

The proposed understanding of the inequality of the decision-making process regarding the evaluation and selection of the project team allows us to really evaluate the conditions for the formation of project teams, to determine the dynamic characteristics of the personnel's professionalism in the market of transport services, as well as the principles of forming the portfolio of urban transport investment projects.

Consequently, the conducted studies allow qualifying three levels that characterize the expediency of using the algorithm and software product in relation to the formation of passenger transport project teams,

depending on the hierarchy of solving the problems that are put, namely:

I level – the study of the strategic nature of the formation of passenger transport projects teams is carried out at the level of the central body of executive power in the field of transport. These include: the formation of a nationwide program for the development and improvement of transport, measures to enhance the safety of transportation, the concept of transport development by type, etc.;

II level – the development of a tactical approach to the formation of project teams takes place at the level of the governmental body of state administration in transport and local self-government. These include: development and management of regional transport development programs; current transportation planning; formation of optimal transport network; preparation and conducting of competition for transportation; comprehensive study of population demand for transportation; management and control over the implementation of transportation, etc.;

III level – the formation of projects teams of operational solution is carried out at the level of carriers, that is, the transport personnel, which directly carries out the provision of transport services. This area includes the tasks of management of transportation technology, namely: preparation of materials for the competition for passenger transportation; definition of organizers of transportation; survey of passenger traffic on routes; calculation of the optimal number of vehicles and their distribution on the transport network; normalization of speed of vehicles and rational mode of their movement on routes; formation of timetables on routes, along with the work of drivers and the reserve of vehicles on routes; dispatching and controlling passenger transportation.

REFERENCES

1. The main features of the modern information society (2018). (n.d.). *Studies.in.ua*. Retrieved from http://studies.in.ua/inform-pravo-shporu/2504-osnovn-risi-suchasnogo-nformacynogo-susplstva.html/ [in Ukrainian].

2. Okinawan Charter of the Global Information Society (2018). (n.d.). *Studies.in.ua*. Retrieved from http://studies.in.ua/inform-pravo-shporu/2504-osnovn-risi-suchasnogo-nformacynogo-susplstva.html/ [in Ukrainian].

3. Rennie, J.J. (2015). Making a Scene: Producing Media Literacy Narratives in Canada. University of Toronto. *hdl.handle.net*. Retrieved from https://tspace.library.utoronto.ca/handle/1807/71312.

4. Education for the innovative societies in the XXI century. Summit “group of eight” (2006). (n.d.) *lib.herzen.spb.ru*. Retrieved from https://lib.herzen.spb.ru/media/magazines/contents/2/2006_11/obrazovaniye_vest2006_11_03_07.pdf/ [in Russian].

5. Corruption in the EU, Part 1 (2017). *pavel-shipilin.livejournal.com*. Retrieved from http://pavel-shipilin.livejournal.com/664830.html [in Russian].

6. Vakarchuk, I.M. (2015). Implementation of the accumulative rating system "How to become a minister?". The system of energy and resource saving technologies transfer for the development of the road transport complex of Ukraine. MONU, NTU. Retrieved from http://urtc.ntu.edu.ua [in Ukrainian].

7. Vakarchuk, I.M. (2015). Creation of a regional educational logistics center based on the National Transport University using the achievements of information technology and logistics. The system of energy and resource saving technologies transfer for the development of the road transport complex of Ukraine. MONU, NTU. Retrieved from http://urtc.ntu.edu.ua [in Ukrainian].

8. Shpylovyi, I.F., Marunych, V.S., Vakarchuk, I.M., Kharuta, V.S. (2016). Development of valuation models and the method of selection of the personnel of the project team urban passenger transportation. Bulletin of National Technical University «Kharkiv Polytechnic Institute». Series: Strategic Management, Portfolio, Program and Project Management, 2 (1174), 95-98. DOI: *https://doi.org/10.20998/2413-3000.2016.1174.21* [in Ukrainian].

9. Kharuta, V.S. (2014). Adaptation of precedent method for project team forming of urban passenger transportation. Science journal: Project Management, system analysis and logistics, Series: «Technical sciences», 1, 256-265 [in Ukrainian].

ПЕРЕЛІК ПОСИЛАНЬ

1. Основні риси сучасного інформаційного суспільства (2018), *Studies.in.ua*. Режим доступу http://studies.in.ua/inform-pravo-shporu/2504-osnovn-risi-suchasnogo-nformacynogo-susplstva.html/.

2. Окінавська хартія глобального інформаційного суспільства (2018), *Studies.in.ua*. Режим доступу http://studies.in.ua/inform-pravo-shporu/2504-osnovn-risi-suchasnogo-nformacynogo-susplstva.html/.

3. Rennie, J.J. (2015). Making a Scene: Producing Media Literacy Narratives in Canada. University of Toronto. *hdl.handle.net*. Retrieved from https://tspace.library.utoronto.ca/handle/1807/71312.

4. Образование для инновационных обществ в XXI веке. Саммит «группы восьми» (2006), *lib.herzen.spb.ru*. Режим доступа https://lib.herzen.spb.ru/media/magazines/contents/2/2006_11/obrazovaniye_vest2006_11_03_07.pdf/.

5. Коррупция в ЕС, ч. 1 (2017). *pavel-shipilin.livejournal.com*. Режим доступа http://pavel-shipilin.livejournal.com/664830.html.

6. Вакарчук, І.М. Впровадження накопичувальної рейтингової системи «Як стати міністром?». Система трансферу енерго- та ресурсозберігаючих технологій для розвитку дорожньо-транспортного комплексу України. МОНУ, НТУ, 2015. Режим доступу http://urtc.ntu.edu.ua.

7. Вакарчук, І.М. Створення регіонального освітянського логістичного центру на базі Національного транспортного університету з використанням досягнень інфотехнологій і логістики. Система трансферу енерго- та ресурсозберігаючих технологій для розвитку дорожньо-транспортного комплексу України. МОНУ, НТУ, 2015. Режим доступу http://urtc.ntu.edu.ua.

8. Шпильовий І.Ф. Розробка моделі оцінки та методу відбору персоналу команди проекту міських пасажирських перевезень / І.Ф. Шпильовий, В.С. Марунич, І.М. Вакарчук, В.С. Харута // Вісник НТУ «ХПІ». Серія: Стратегічне управління, управління портфелями, програмами та проектами, Вип.2 (1174), 2016. – С. 95-98. DOI: https://doi.org/10.20998/2413-3000.2016.1174.21.

9. Харута В.С. Адаптація прецедентного методу для формування команди проектів та програм міських пасажирських перевезень / В.С. Харута // Управління проектами, системний аналіз і логістика. Науковий журнал: в 2 ч. Ч. 1: Серія: „Технічні науки" – К.: НТУ, 2014. – Вип. 14.. – С. 256-265.

ABSTRACT

Marunych V.S., Vakarchuk I.M., Kharuta V.S., Tyshkevych M.M. Perspectives of the Accumulative System "How to Become a Ministry of Transport and Infrastructure?". Visnyk of National Transport University. Series «Technical sciences». Scientific and Technical Collection. Kyiv. National Transport University. 2019. Vol. 3 (45).

The relevance of the topic is determined by the rapid development of the information society, the problems of staffing of the transport industry and road construction in a global competitive environment, reducing the general level of education and knowledge gained by future specialists in the industry, and the lack of interaction between educational institutions of the transport profile, transport operators, state authorities and local self-government.

The purpose of the study is to create accumulative system as workable educational reform mechanism to stimulate the acquisition of knowledge by students and prevention and prophylactic of bribery in educational institutions and state authorities, increase the professional level of specialists and further providing with specialists for operational, tactical and strategic levels of project and programs management in transport and road construction.

The task of the study**:** creation of a regional databank of rating of students, lecturers, specialists and employers in the field of transport and road construction; implementation of the accumulative system "How to become the Minister of Transport and Infrastructure?" for using the basic rating scores obtained by students in further professional activities in the field of transport and road construction; development of a mechanism for coordination and exchange of information between interested parties (transport education institutions, public authorities and local authorities, transport operators), with further access to the Global Employment Network.

Research methodology used**:** system approach, situation of the theory of precedents; the theory of decision making and methods of multi-criteria assessment, as well as elements of the theory of project management, programs and team management.

KEY WORDS: TRANSPORT AND ROAD CONSTRUCTION PERSONNEL, RATING DATABASE, ACCUMULATIVE SYSTEM, PREVENTION AND PROPHYLACTIC OF BRIBERY.

РЕФЕРАТ

Марунич В.С. Перспективи накопичувальної системи «Як стати міністром транспорту та інфраструктури?» / В.С. Марунич, І.М. Вакарчук, В.С. Харута, М.М. Тишкевич // Вісник Національного транспортного університету. Серія «Технічні науки». Науково-технічний збірник – К.: НТУ, 2019. – Вип. 3 (45).

Актуальність теми визначено стрімким розвитком інформаційного суспільства, проблемами кадрового забезпечення галузі транспорту та дорожнього будівництва в умовах глобального конкурентного середовища, зниженням загального рівня освіти та отриманих знань майбутніми фахівцями галузі та відсутністю взаємодії навчальних закладів транспортного профілю, транспортних операторів, органів державної влади та місцевого самоврядування.

Мета дослідження полягає у створенні накопичувальної системи, як працездатного механізму реформування галузі освіти для стимулювання отримання знань студентами та запобігання і профілактики хабарництва у закладах освіти та органах державної влади, підвищення фахового рівня

спеціалістів і подальшого забезпечення фахівцями для оперативного, тактичного та стратегічного рівнів управління проектами та програмами у галузі транспорту та дорожнього будівництва.

Завдання дослідження**:** створення регіонального банку даних рейтингу студентів, викладачів, фахівців та роботодавців у галузі транспорту та дорожнього будівництва; впровадження накопичувальної системи «Як стати міністром транспорту та інфраструктури?» для використання отриманих студентами базових рейтингових балів у подальшій професійній діяльності в галузі транспорту та дорожнього будівництва; розробка механізму координації та обміну інформацією між зацікавленими сторонами (заклади освіти транспортного профілю, органи державної влади та місцевого самоврядування, транспортні оператори) з подальшим виходом до Глобальної мережі працевлаштування.

Використана методика дослідження**:** системний підхід, положення теорії прецедентів; теорія прийняття рішень і методів багатокритеріального оцінювання, а також, елементи теорії управління проектами, програмами та управління командами.

КЛЮЧОВІ СЛОВА: ПЕРСОНАЛ ТРАНСПОРТУ ТА ДОРОЖНЬОГО БУДІВНИЦТВА, РЕЙТИНГОВА БАЗА ДАНИХ, НАКОПИЧУВАЛЬНА СИСТЕМА, ЗАПОБІГАННЯ І ПРОФІЛАКТИКА ХАБАРНИЦТВА.

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